AMENDMENTS TO THE CLAIMS

Please amend the claims as follows.

1. (Currently Amended) A system for tracing a simulation design comprising:
   an encoded assertion asserting a value of a node of the simulation design at a point in a simulation;
   a fanin cone detection facility configured to obtain a fanin cone for the encoded assertion;
   a waveform trace facility configured to obtain waveform data comprising a history of signal values for the node; and
   a simulation toolkit configured to:
      obtain node data using the fanin cone and the waveform data[[.]]; and
      generate a hook into the simulation to obtain an instrumented simulation,
         wherein the hook is generated based on the encoded assertion, the fanin cone, and the waveform trace.

2. (Original) The system of claim 1 further comprising:
   a connectivity database comprising a connectivity description for the node.

3. (Original) The system of claim 2, wherein the connectivity database is used to obtain the fanin cone.

4. (Original) The system of claim 3, wherein the connectivity database resides within a simulation environment.

5. (Original) The system of claim 1, wherein the fanin cone detection facility is configured to obtain the fanin cone prior to execution of the simulation environment.

6. (Original) The system of claim 1, wherein the waveform trace facility is configured to obtain the waveform data prior to execution of the simulation environment.

7. (Original) The system of claim 1, wherein the node data is obtained during execution of the simulation.

8. (Currently Amended) The system of claim 1, wherein the node data is obtained using the hook[[s]] ~~into a simulation image~~.

9. (Original) The system of claim 1, wherein the fanin cone detection facility provides fanin cone information in a binary format.

10. (Original) The system of claim 9, wherein the binary format facilitates a third party format of the node data.

11. (Original) The system of claim 1, wherein the assertion is a sequential assertion.

12. (Original) The system of claim 11, wherein the simulation design comprises a specification for a compiler to understand the sequential assertion.

13. (Original) The system of claim 1, wherein the encoded assertion is modified while the simulation is executing.

14. (Original) A method of tracing a simulation design comprising:

obtaining an assertion for a simulation image of the simulation design;

generating hooks into the simulation image using a simulation toolkit to obtain an instrumented simulation image, wherein the hooks are generated based on the assertion, a fanin cone, and waveform data; and

executing the instrumented simulation image in a simulation environment to obtain node data from the assertion.

15. (Original) The method of claim 14, further comprising:

debugging a failure of the assertion using the node data.

16. (Original) The method of claim 15, wherein the debugging is performed while simulation is executing.

17. (Original) The method of claim 14, further comprising:

modifying the assertion during execution of the simulation environment.

18. (Original) The method of claim 14, wherein obtaining the fanin cone occurs prior to the execution of the simulation environment.

19. (Original) The method of claim 14, wherein obtaining the waveform data occurs prior to the execution of the simulation environment.

20. (Original) The method of claim 14, wherein obtaining the fanin cone comprises tracing the fanin cone using a connectivity database.

21. (Original) The method of claim 14, wherein the assertion is a sequential assertion.

22. (Original) The method of claim 21 further comprising:
generating a directive for the design to obtain a state device for the sequential assertion.

23. (Original) A computer system for tracing a simulation design comprising:
a processor;
a memory;
a storage device; and
software instructions stored in the memory for enabling the computer system to:
obtain an assertion for a simulation image of the simulation design;
generate hooks into the simulation image using a simulation toolkit to obtain an instrumented simulation image, wherein the hooks are generated based on the assertion, a fanin cone, and waveform data; and
execute the instrumented simulation image in a simulation environment to obtain node data from the assertion.

24. (Original) The computer system of claim 23 further comprising:
software instructions to debug the failure of the assertion using the node data.

25. (Original) The computer system of claim 23 further comprising:
software instructions to modify the assertion during the execution of the simulation.

26. (Original) An apparatus for tracing a simulation design comprising:
means for obtaining an assertion for a simulation image of the simulation design;
means for generating hooks into the simulation image using a simulation toolkit to obtain an instrumented simulation image, wherein the hooks are generated based on the assertion, a fanin cone, and waveform data;

means for executing the instrumented simulation image in a simulation environment to obtain node data from the assertion; and

means for debugging the failure of the assertion using the node data.